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Chou

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[54] **STRAP CONNECTING DEVICES FOR SWIMMING GOGGLES**

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[51] **Int. Cl.**[6] **A61F 9/02**; A44B 11/02

[52] **U.S. Cl.** **2/428**; 2/452; 24/168; 24/197; 24/198

[58] **Field of Search** 2/426, 431, 434, 2/438, 439, 440, 441, 442, 443, 445, 446, 452; 24/170, 197, 168, 200

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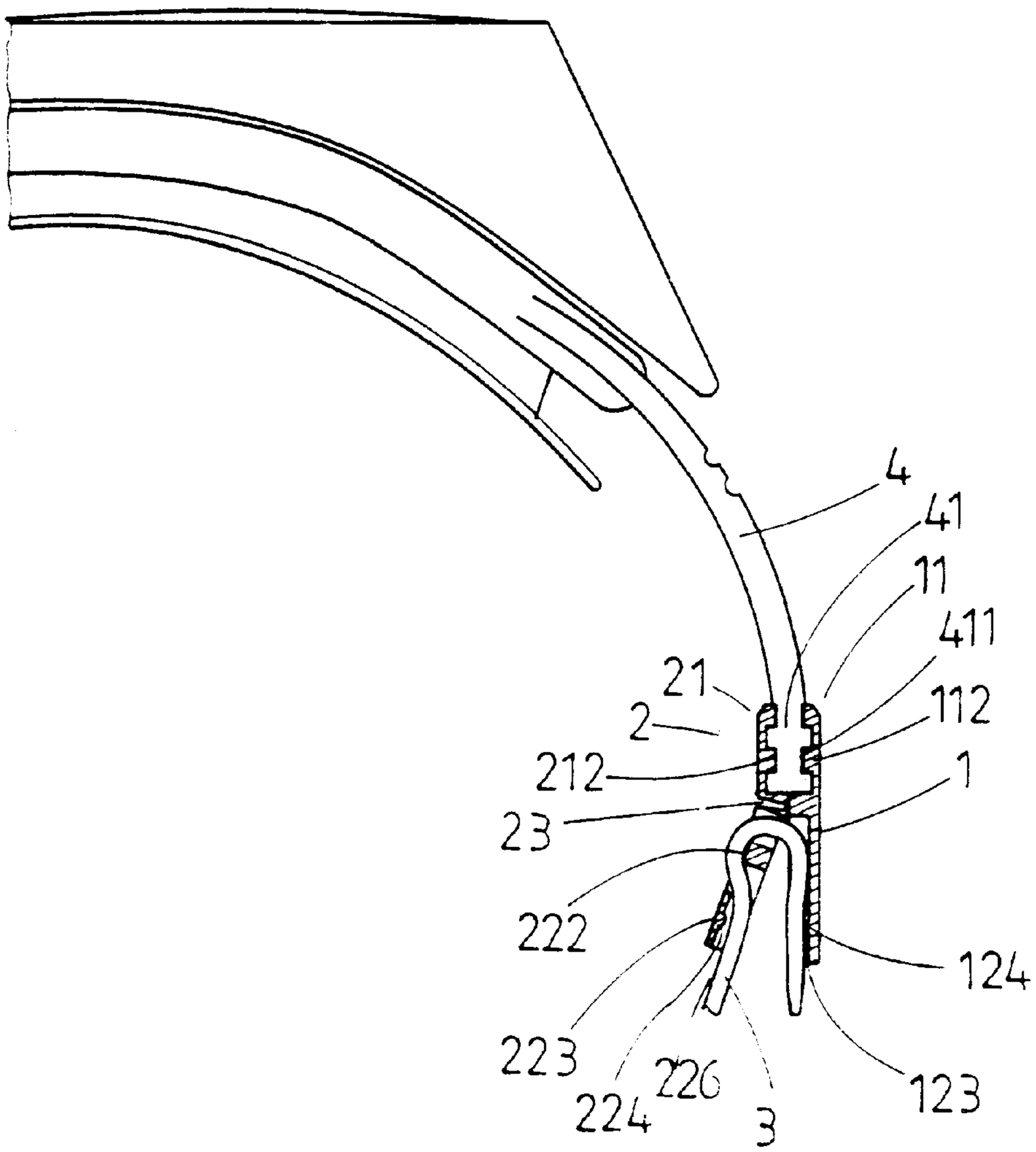
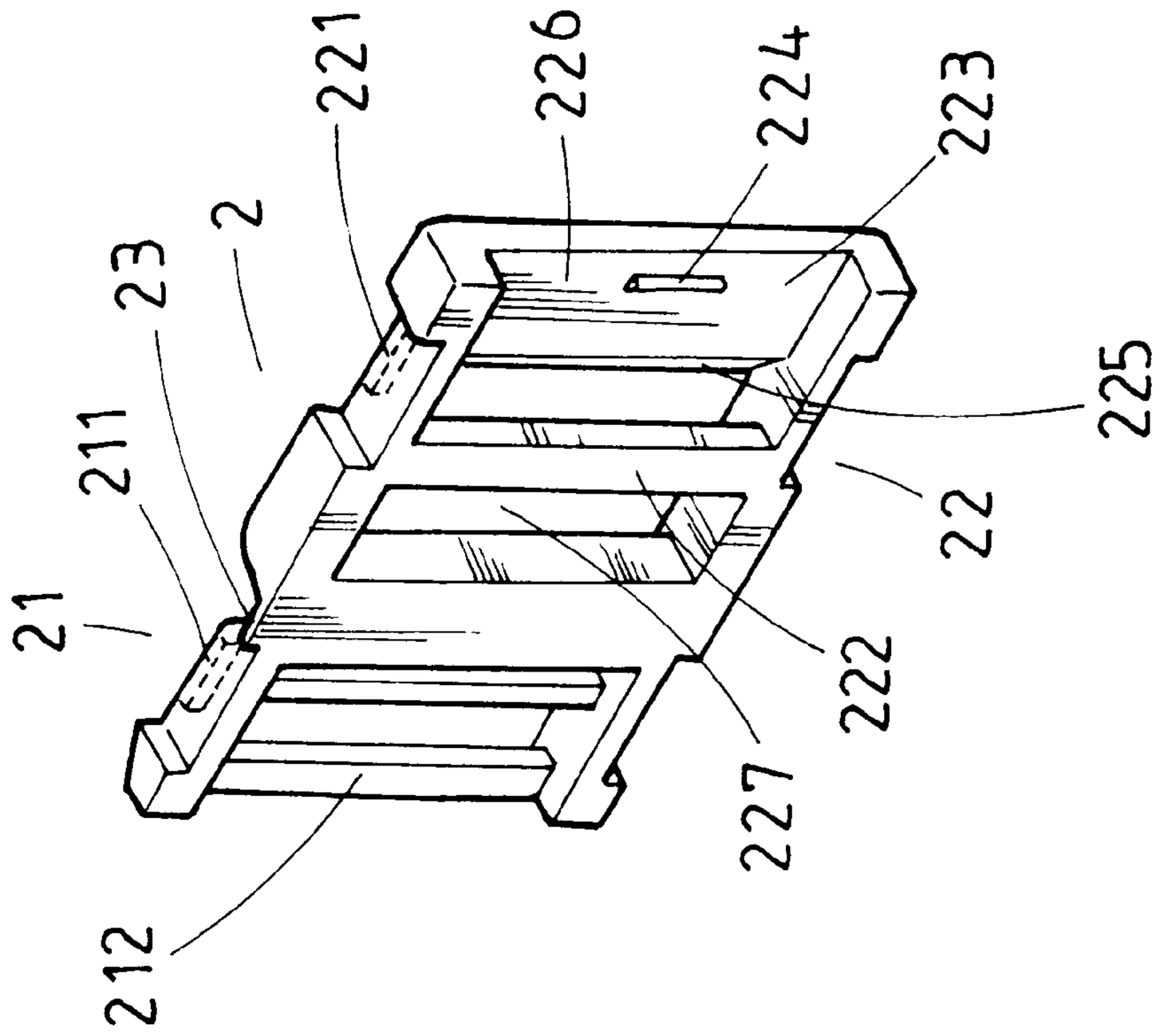
Assistant Examiner—Katherine Moran
Attorney, Agent, or Firm—Rosenberg, Klein & Bilker

[57] **ABSTRACT**

A connecting device for a pair of swimming goggles includes a first end securely attached to a frame of the swimming goggles and a second end including a first part and a second part releasably engaged with the first part. The strap is movable between the first part and the second part to adjust a length of a strap when the first part and the second part are disengaged from each other. The strap is retained in position between the first part and the second part when the first part and the second part are engaged with each other.

7 Claims, 8 Drawing Sheets

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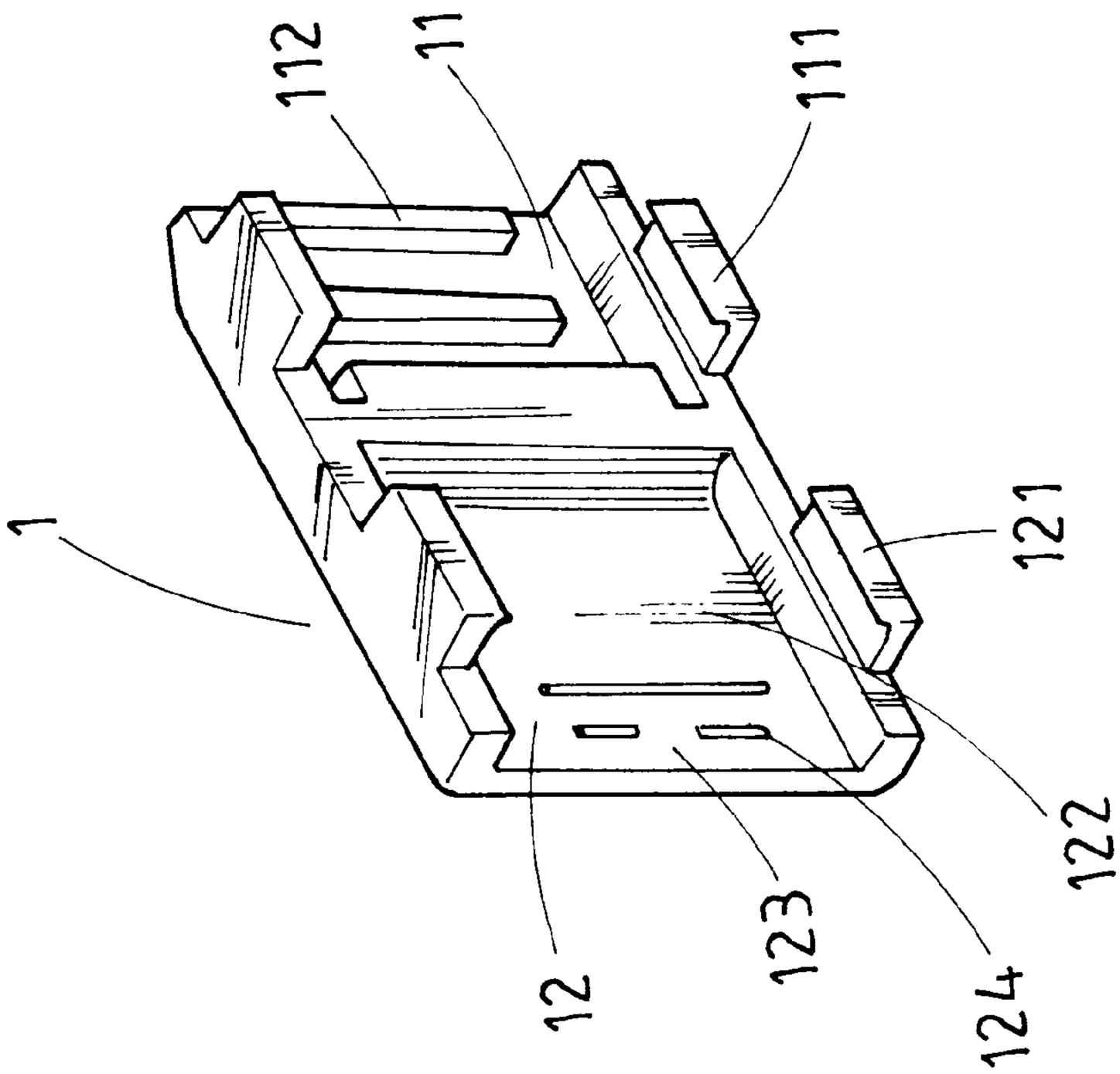
212

FIG. 1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121
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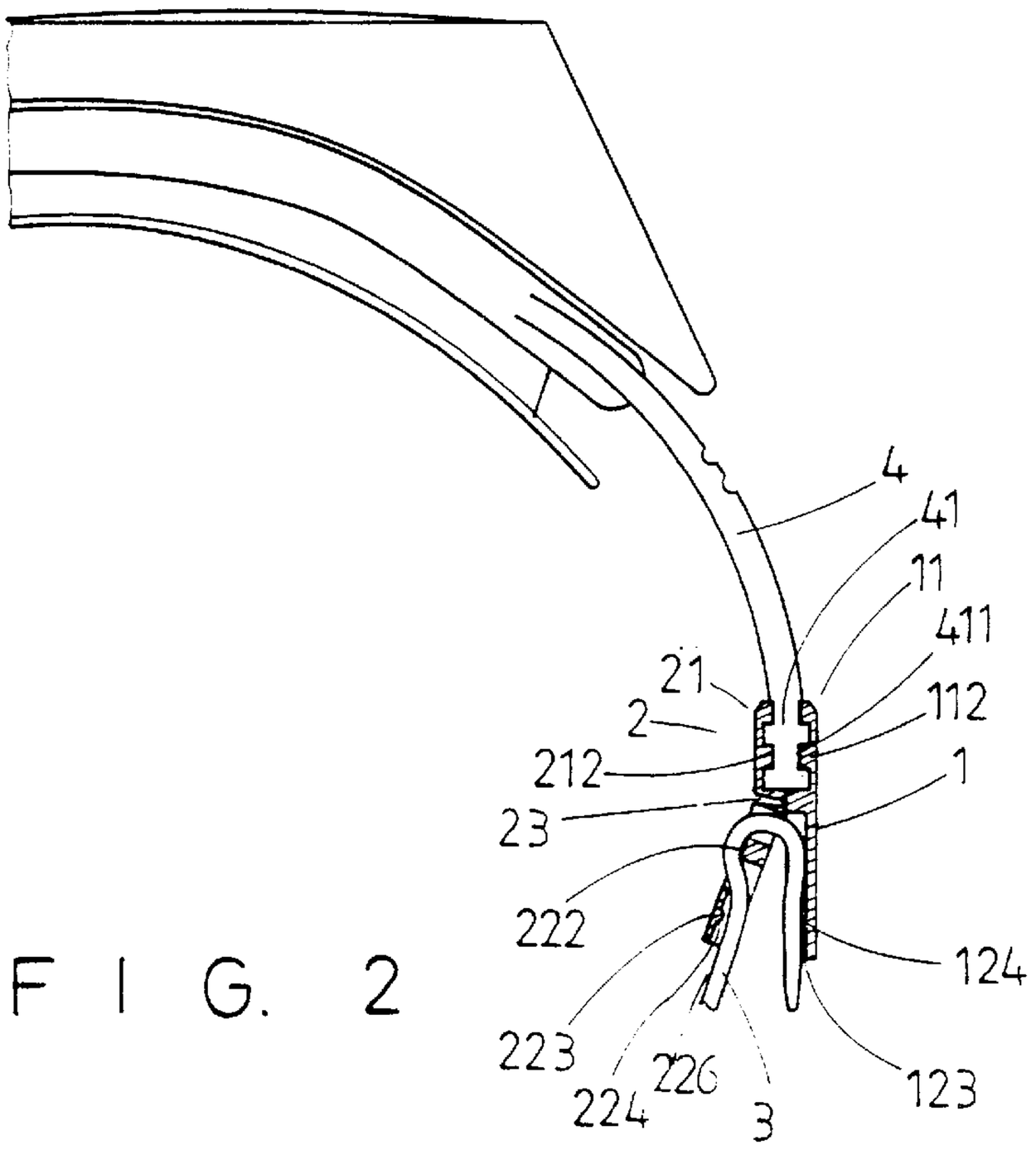
122


4
41
11
411
21
112
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212
1
23
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3
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FIG. 2

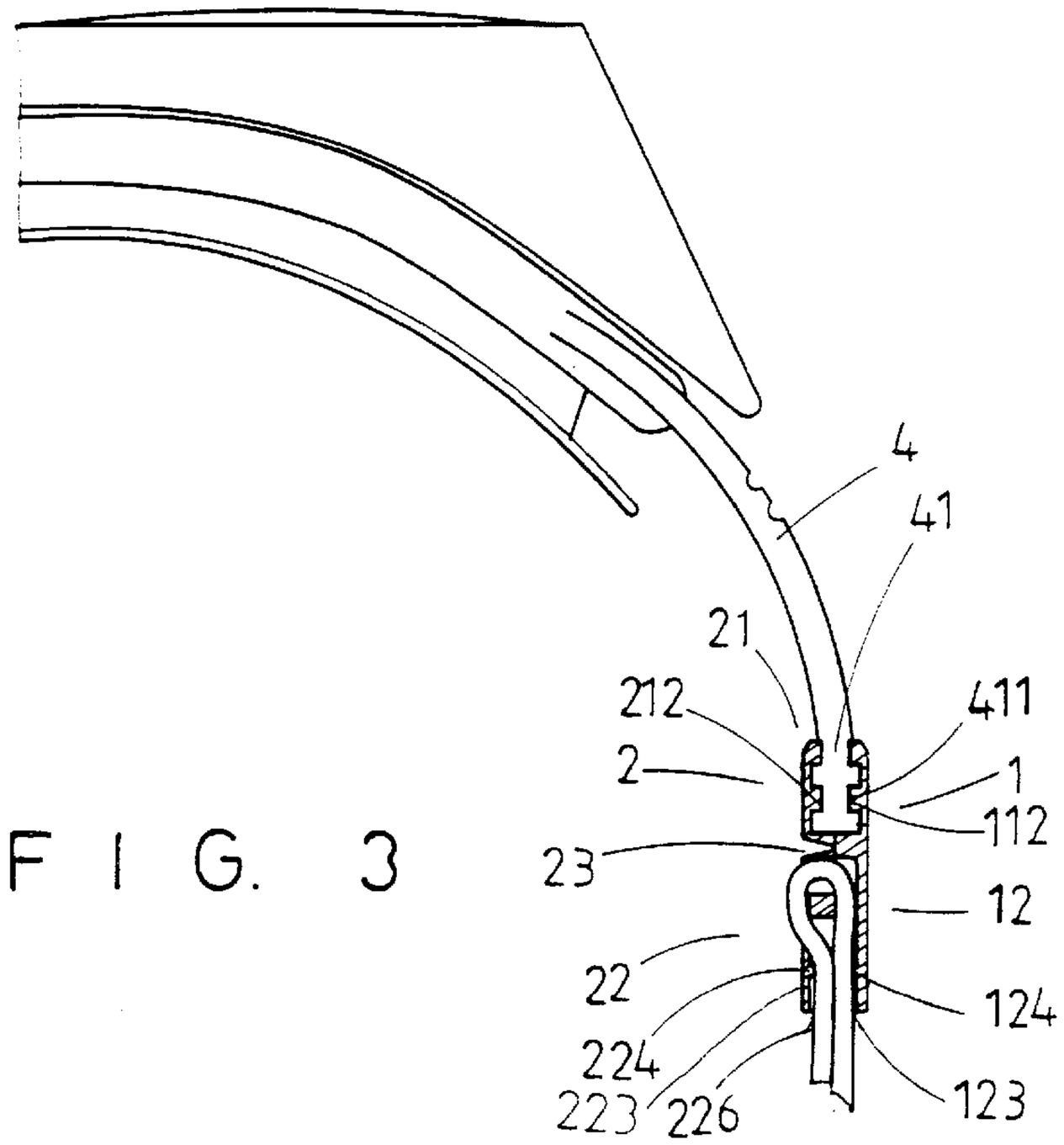
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FIG. 3

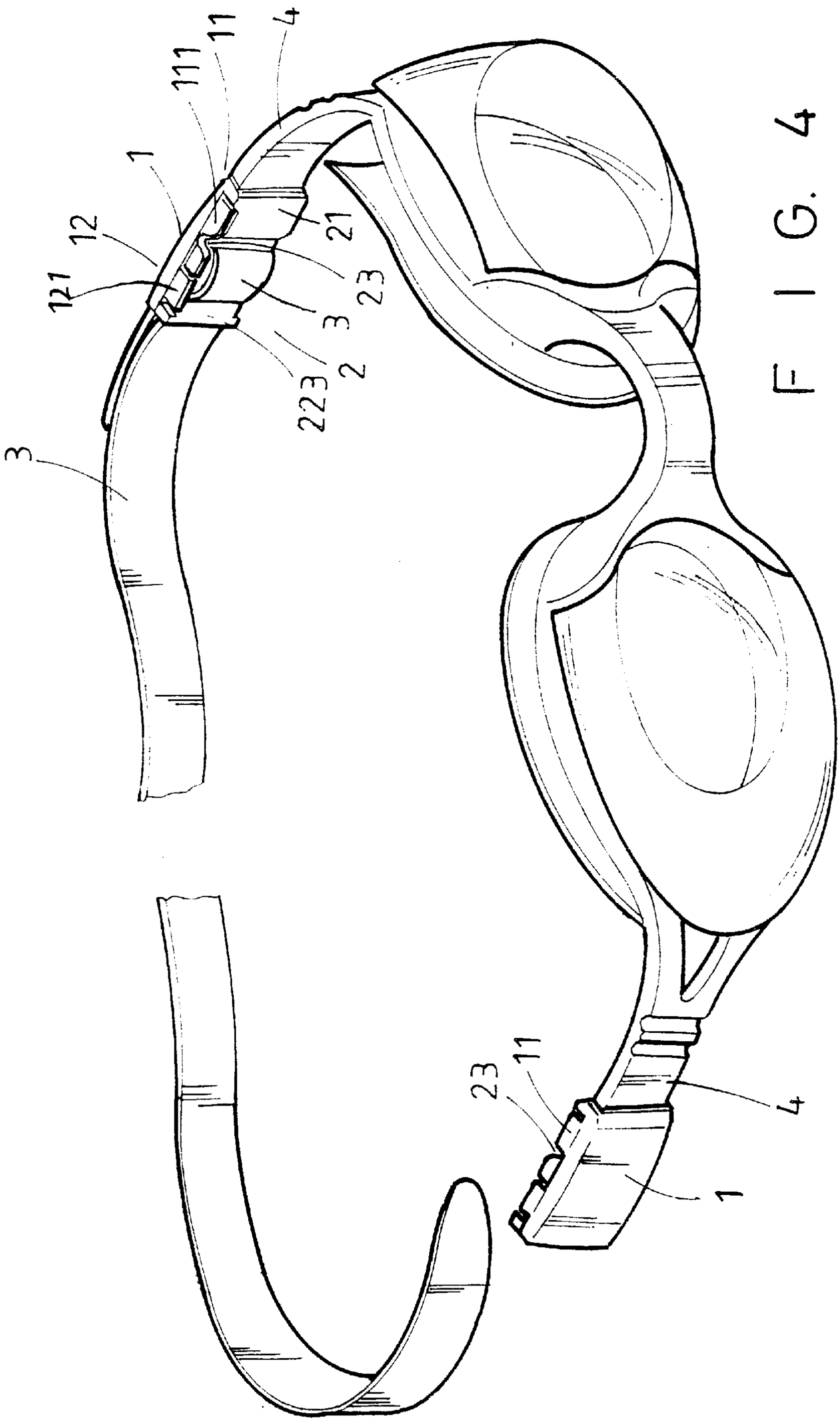


FIG. 4

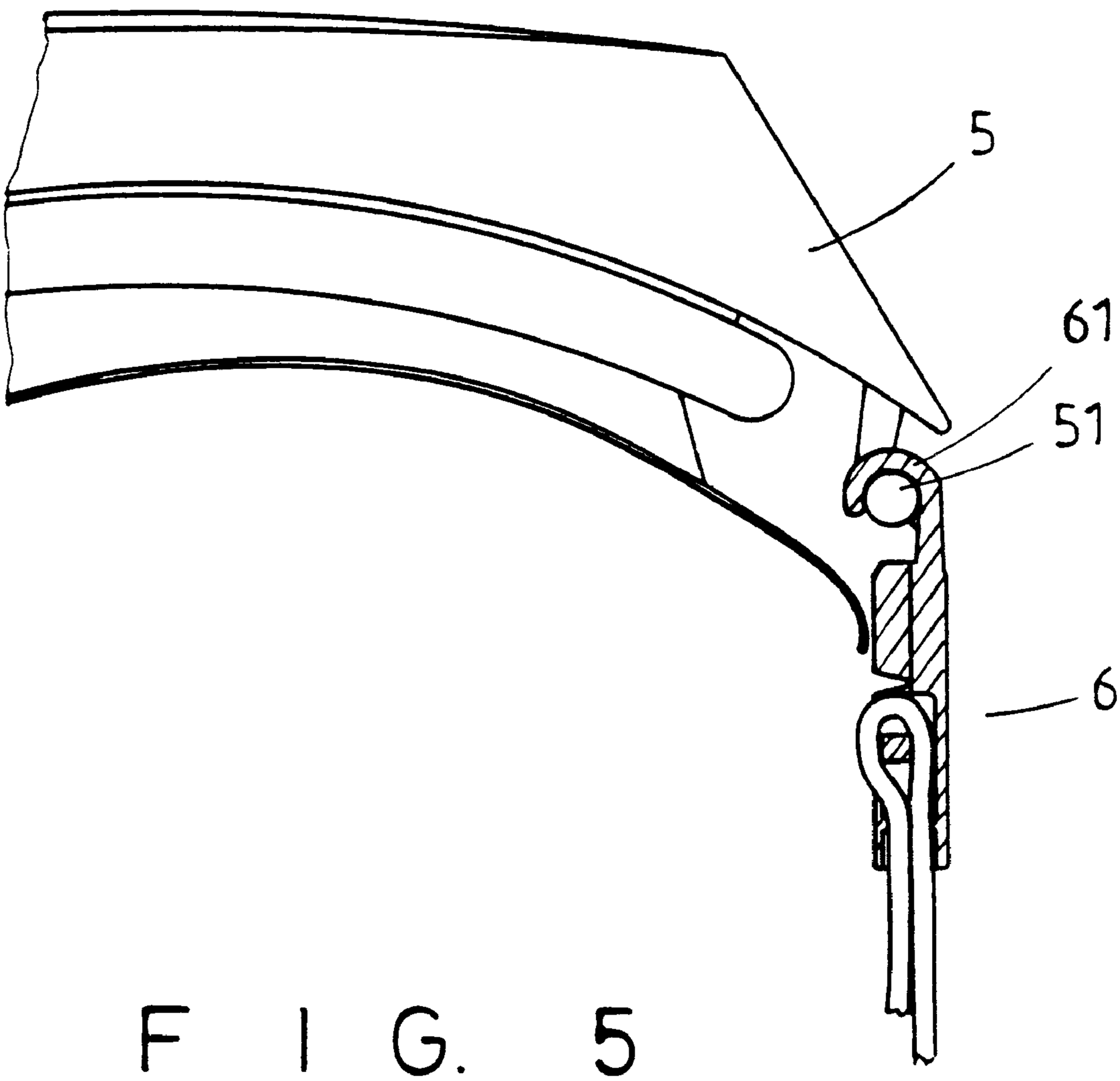


FIG. 5

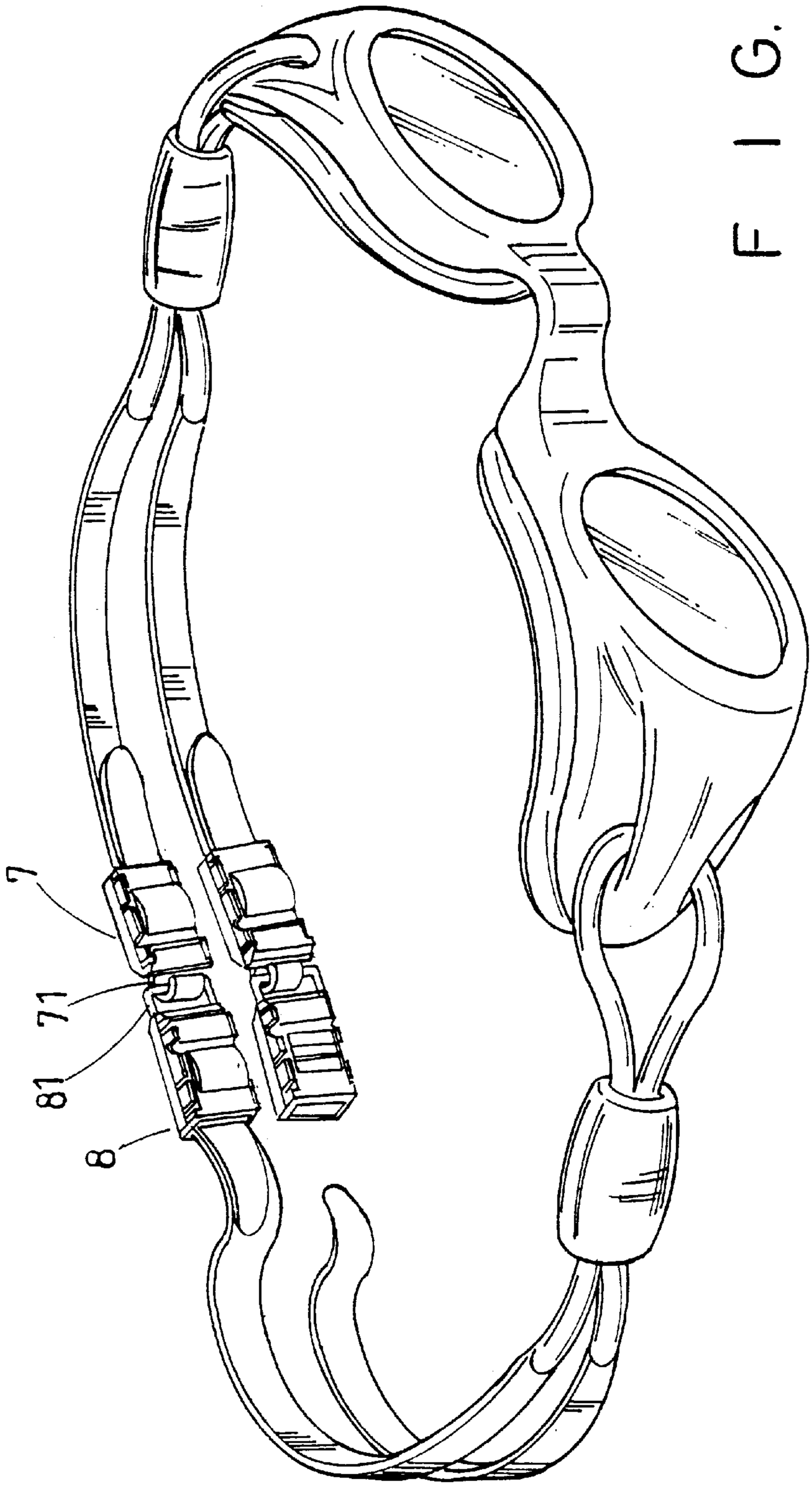
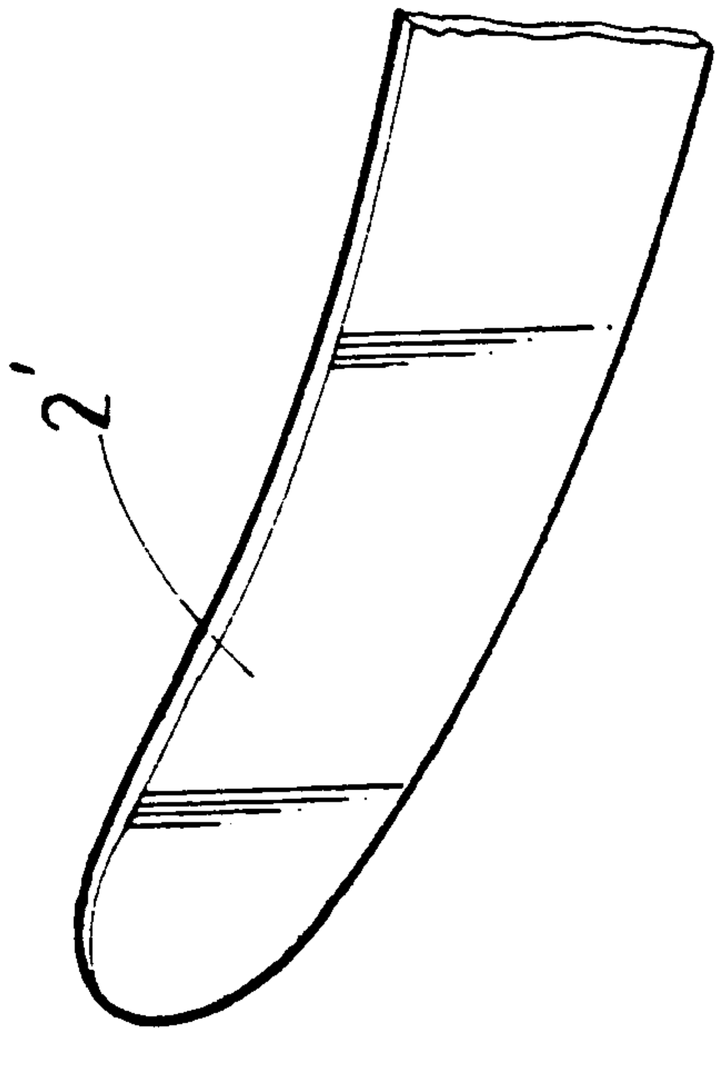
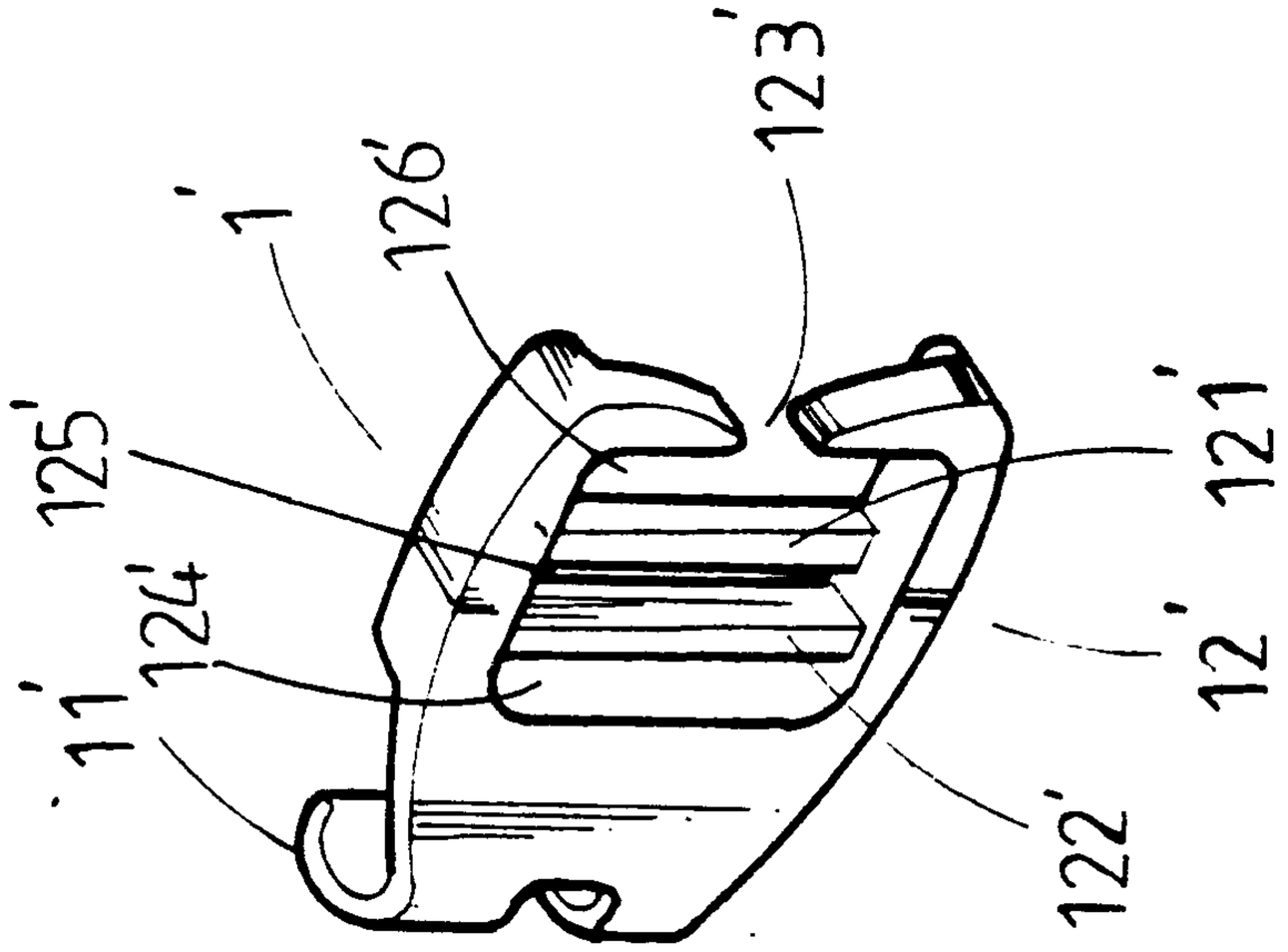
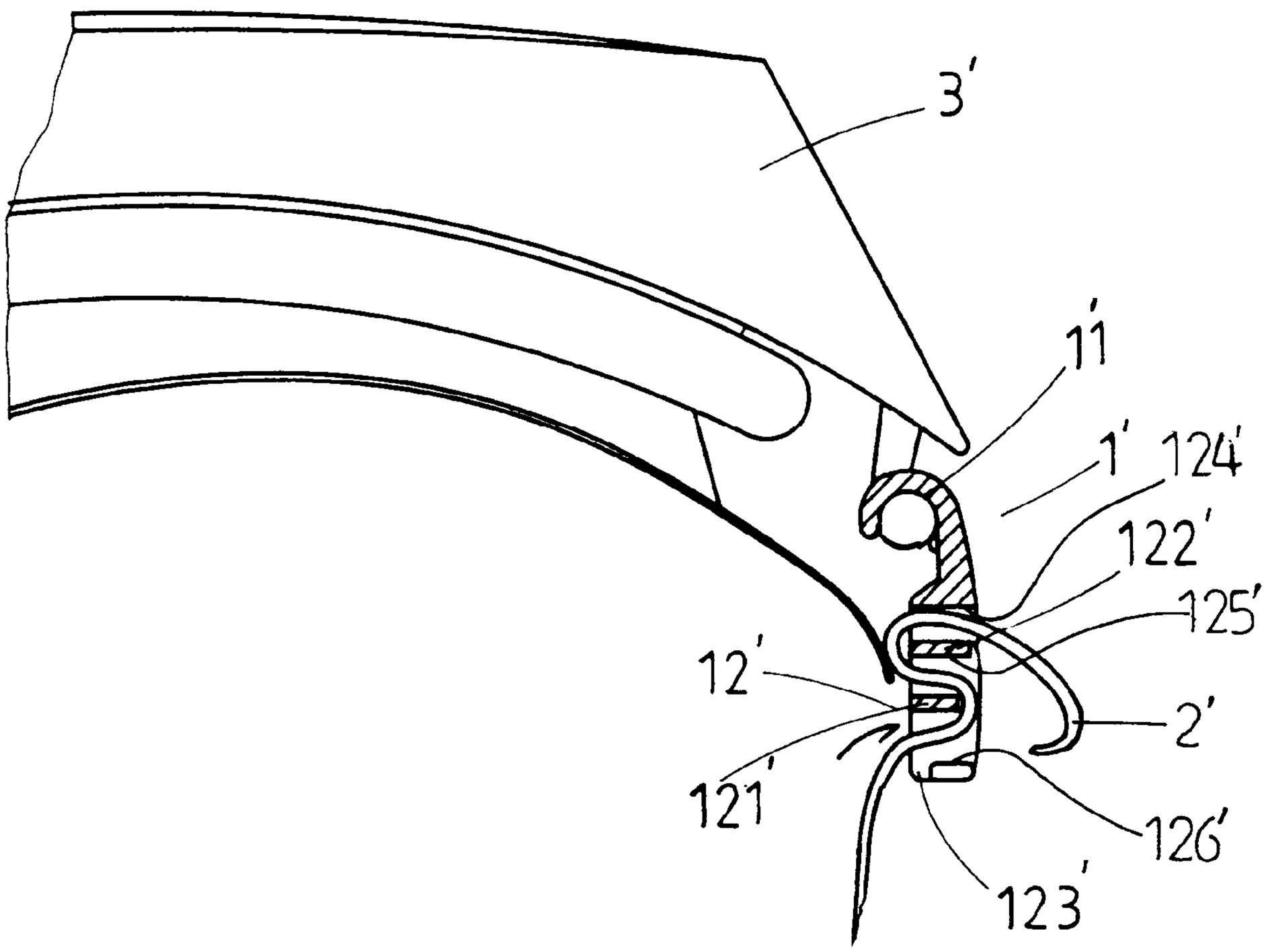


FIG. 6

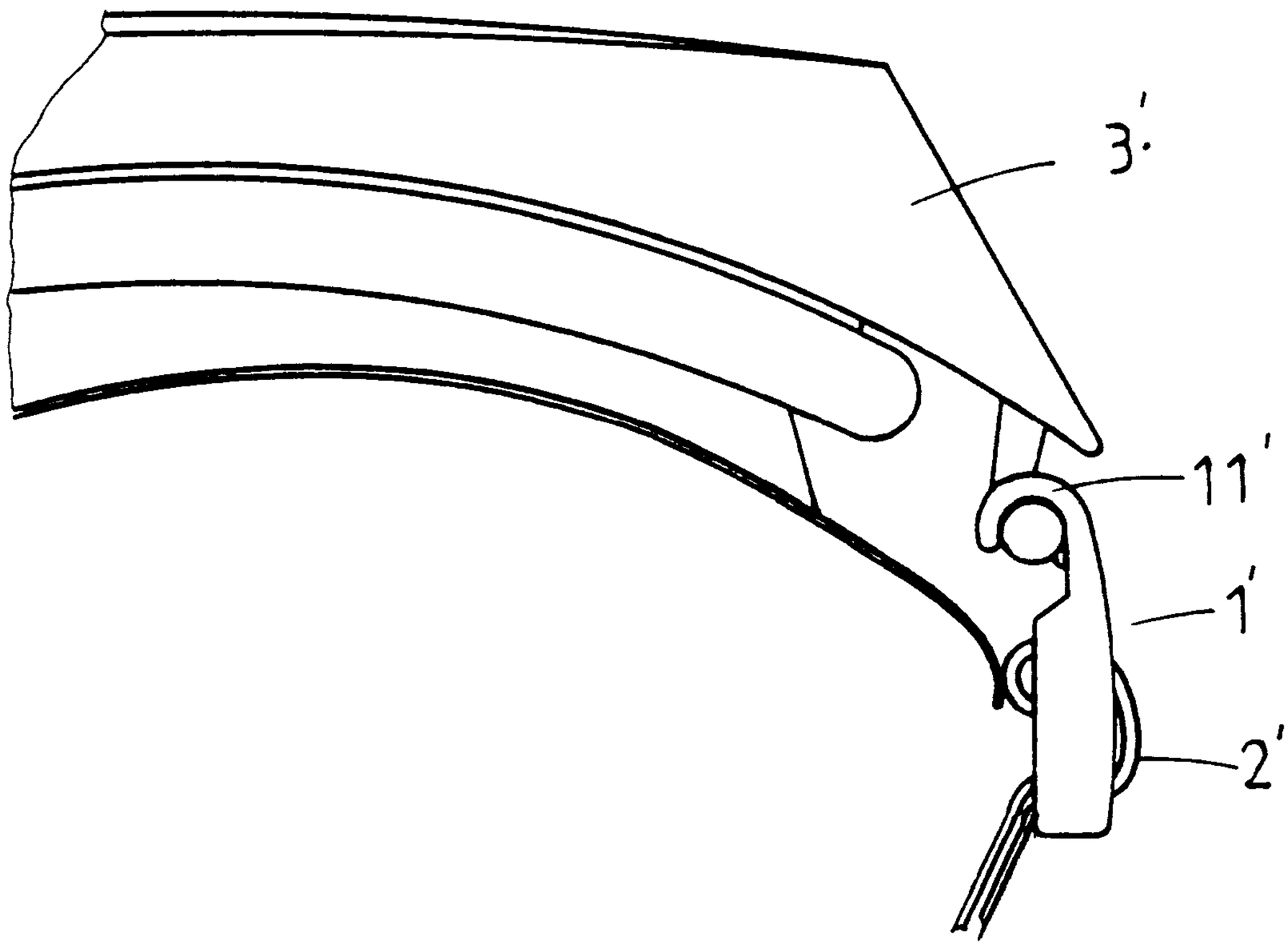




PRIOR ART
FIG. 7



PRIOR ART
FIG. 8



PRIOR ART
FIG. 9

STRAP CONNECTING DEVICES FOR SWIMMING GOGGLES

BACKGROUND OF THE INVENTION

The present invention relates to strap connecting devices for swimming goggles.

FIGS. **7** to **9** of the drawings illustrate a typical conventional strap connection for swimming goggles, in which the strap connecting member **1'** is made of rigid material and comprises a first end **11'** connected to a frame **3'** (FIGS. **8** and **9**) of a pair of swimming goggles and a second end **12'**. The second end **12'** is substantially hollow and includes two spaced transverse beams **121'** and **122'** and an access **123'** defined in an end edge thereof, thereby defining three spaces **124'**, **125'**, and **126'**. In assembly, as shown in FIG. **8**, an end of the strap **2'** is first wound through the spaces **126'**, **125'**, and **125'** in sequence and then extended into the space **126'** and finally fixed in position (FIG. **9**). Nevertheless, the assembly procedure and re-adjustment of the length of the strap are troublesome. In addition, connection between the strap **2'** and the strap connecting member **1'** is not smooth which may cause an uncomfortable feeling. The present invention is intended to provide improved strap connecting devices for swimming goggles which mitigate and/or obviate the above problems.

SUMMARY OF THE INVENTION

In accordance with one aspect of the invention, a connecting device is provided for a pair of swimming goggles having a frame and a strap. The connecting device comprises a first end securely attached to the frame and a second end including a first part and a second part releasably engaged with the first part. The strap is movable between the first part and the second part to adjust a length of the strap when the first part and the second part are disengaged from each other. The strap is retained in position between the first part and the second part when the first part and the second part are engaged with each other.

In a preferred embodiment of the invention, a connecting device includes a first member and a second member. The first member has a first end and a second end, wherein the second end of the first member includes a compartment through which a strap of a pair of swimming goggles is extendible and a first open end edge through which the strap is extendible. The second member has a first end releasably engagable with the first end of the first member and a second end releasably engagable with the second end of the second member. The first end of the first member and the first end of the second member are securely attached to a frame of a pair of swimming goggles. The second member further includes a bendable section formed between the first end and second end thereof to allow the first end and the second end thereof to be bendable relative to each other. The second end of the second member includes a bottom wall having an opening defining therein. A beam extends across the opening and around which the strap is windable. The bottom wall further includes a second open end edge through which the strap is extendible.

The strap is movable between the second end of the first member and the second end of the second member to adjust a length of the strap when the second end of the first member and the second end of the second member are disengaged from each other. The strap is retained in position between the second end of the first member and the second end of the second member when the second end of the first member and the second end of the second member are engaged with each other.

One of the first end of the first member and the first end of the second member includes at least one snapping fastener formed thereon, and the other of the first end of the first member and the first end of the second member includes at least one notch for releasably engaging with said at least one snapping fastener.

One of the second end of the first member and the second end of the second member includes at least one snapping fastener formed thereon, and the other of the second end of the first member and the second end of the second member includes at least one notch for releasably engaging with said at least one snapping fastener.

The second end of the first member includes a projection to securely retain the strap in position when the second end of the first member and the second end of the second member are engaged with each other.

The bottom wall of the second end of the second member includes a projection to securely retain the strap in position when the second end of the first member and the second end of the second member are engaged with each other.

The bottom wall of the second end of the second member may include an inclined surface which faces the beam to allow smooth winding and extending of the strap.

Other objects, advantages, and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an exploded perspective view of a strap connecting device for swimming goggles in accordance with the present invention;

FIG. **2** is a partial top view, partly sectioned, of a pair of swimming goggles using the strap connecting device in accordance with the present invention;

FIG. **3** is a view similar to FIG. **2**, wherein the strap connecting device is in a closed status;

FIG. **4** is a perspective view of the pair of swimming goggles using the strap connecting device in accordance with the present invention;

FIG. **5** is a view similar to FIG. **2**, illustrating a modified embodiment of the strap connecting device in accordance with the present invention;

FIG. **6** is a perspective view illustrating a modified arrangement of the present invention on a pair of swimming goggles;

FIG. **7** is an exploded perspective view of a portion of a strap and a conventional strap connecting member;

FIG. **8** is a partial top view, partly sectioned, of a pair of swimming goggles using the strap connecting member in FIG. **7**; and

FIG. **9** is a top view illustrating the swimming goggles in FIG. **8**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. **1** to **6** of the drawings and initially to FIG. **1**, a strap connecting device for swimming goggles in accordance with the present invention generally includes a first member **1** and a second member **2** which has a portion releasably engaged with the first member **1** to hold a section of a strap **3** (FIGS. **2** and **3**). Each of the first member **1** and the second member **2** includes a first end **11**, **21** and a second end **12**, **22**, wherein the first end **11** and second end **12** of the

first member **1** respectively include snapping fasteners **111** and **121** for releasably engaging with notches **211** and **221** respectively defined in the first end **21** and second end **22** of the second member **2**. It is appreciated that the releasably engagement between the first ends **11**, **21** and second ends **12**, **22** of the first and second members **1** and **2** can be of any other suitable means.

As shown in FIG. **1**, the first end **11** of the first member **1** includes two ribs **112**, while the first end **21** of the second member **2** also includes two ribs **212** so as to securely hold an engaging section **411** of a distal end **41** of an extension **4** extending from a side of a frame of a pair of swimming goggles (see FIGS. **2** to **4**).

Turning back to FIG. **1**, the second end **12** of the first member **1** includes a compartment **122** for receiving a portion of a strap **3** (see FIGS. **2** and **3**). The second end **12** of the first member **1** further includes an open end edge **123** through which the strap **3** is extendible. In addition, a projection **124** is formed on a bottom wall (not labeled) defining the compartment **122**, which will be described later.

The second end **22** of the second member **2** includes a bottom wall **223** which has an opening **227** (FIG. **2**) defined therein, and a beam **222** is extended across the opening **227** to allow the strap **3** to wind through. The bottom wall **223** includes an open end edge **226** through which the strap **3** is extendible. The first end **21** and the second end **22** of the second member **2** may include a bendable section **23** (e.g., by means of forming a V-shaped groove) formed therebetween such that one of the first and second ends **21** and **22** may be bendable relative to the other.

In assembly, as shown in FIG. **2**, the first end **11** of the first member **1** and the first end **21** of the second member **2** together hold the distal end **41** of the extension **4**, and the snapping fasteners **111** of the first end **11** of the first member **1** is engaged with the notches **211** of the first end **21** of the second member **2**. It is appreciated that the strap connecting device can be retained in a status shown in FIG. **2** as the second member **2** includes a bendable section **23** defined between the first and second ends **21** and **22** thereof. It is further appreciated that the first end **11** of the first member **1** and the first end **21** of the second member **2** can be attached to the frame of a pair of swimming goggles in any other desired manners, and an example of which is illustrated in FIG. **5**, wherein the strap connecting device (now designated by reference numeral "**6**") includes a hook end **61** attached to an engaging beam or post **51** of a frame **5** of a pair of swimming goggles. Alternatively, the first ends **11** and **21** can be integrally formed. An end of the strap **3** is wound through the beam **222** in a manner shown in FIG. **2**. Then, the second end **22** of the second member **2** is moved toward the second end **12** of the first member **2**, while the snapping fasteners **121** of the second end **12** of the first member **1** is caused to engage with the notches **221** of the second end **22** of the second member **2**, as shown in FIGS. **3** and **4**.

The bottom wall **223** of the second end **22** of the second member **2** may include an inclined surface **225** which faces the beam **222** to assist in smooth winding and extending of the strap **3** in the strap connecting member **1**. In addition, the bottom wall **223** of the second end **22** of the second member **2** may include a projection **224** formed thereon to cooperate with the first-mentioned projection **124** on the first member **1** to securely retain the end of the strap **3** in position when the strap connecting device is in a closed position shown in FIG. **3**.

When, re-adjustment of length of the strap **3** is required, the user may pull the strap **3** inwardly which causes disengagement of the notches **221** of the second member **2** from the snapping fasteners **121** of the first member **1**. As a result, the second end **22** of the second member **2** is disengaged from the second end **12** of the first member **1**. In other words, the strap connecting device is changed from the status shown in FIG. **3** to the status shown in FIG. **2** such that the user may simply pull the strap **3** to adjust the length of the strap **3**.

FIG. **6** illustrates a modified embodiment of the present invention, in which two strap connecting devices **7** and **8** are provided for each strap section, and in which each two connected strap connecting devices **7** and **8** include hook **71** and ring **81** engagement for mutual connection.

According to the above description, it is appreciated that the strap connecting device in accordance with the present invention allows easy assembly and length adjustment of the strap. In addition, the strap can be securely retained in position after adjustment. Further, the inclined surface **225** of the second member **2** allows easy assembly and length adjustment of the strap. Further, the resultant pair of swimming goggles does not cause uncomfortable feeling to the user.

Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

1. A connecting device for a pair of swimming goggles having a frame and a strap, the connecting device comprising:

a first fur securely attaching to the frame, and

a second end comprising a first part and a second part releasably engaged with the first part, wherein the strap is movable between the first part and the second part to adjust a length of the strap when the first part and the second part are disengaged from each other, and wherein the strap is retained in position between the first part, and the second part when the first part and the second part are engaged with each other, said second part of said second end having a bendable section for reversibly displacing the second end first and second parts.

2. A connecting device for a pair of swimming goggles having a frame and a strap, the connecting device comprising:

a first member having a first end and a second end, the second end of the first member including a compartment through which the strap is extendible and a first open end edge through which the strap is extendible, and

a second member having a first end releasably engagable with the first end of the first member and a second end releasably engagable with the second end of the second member, the first end of the first member and the first end of the second member being securely attached to the frame, the second member further including a bendable section formed between the first end and second end thereof to allow the first end and the second end thereof to be bendable relative to each other, the second end of the second member including a bottom wall having an opening defining therein, a beam extending across the opening and around which the strap is windable, the bottom wall further including a second open end edge through which the strap is extendible,

wherein the strap is movable between the second end of the first member and the second end of the second member to adjust a length of the strap when the second end of the first member and the second end of the second member are disengaged from each other, and wherein the strap is retained in position between the second end of the first member and the second end of the second member when the second end of the first member and the second end of the second member are engaged with each other.

3. The connecting device according to claim **2**, wherein one of the first end of the first member and the first end of the second member includes at least one snapping fastener formed thereon, and the other of the first end of the first member and the first end of the second member includes at least one notch for releasably engaging with said at least one snapping fastener.

4. The connecting device according to claim **2**, wherein one of the second end of the first member and the second end of the second member includes at least one snapping fastener formed thereon, and the other of the second end of the first member and the second end of the second member includes at least one notch for releasably engaging with said at least one snapping fastener.

5. The connecting device according to claim **2**, wherein the second end of the first member includes a projection to securely retain the strap in position when the second end of the first member and the second end of the second member are engaged with each other.

6. The connecting device according to claim **2**, wherein the bottom wall of the second end of the second member includes a projection to securely retain the strap in position when the second end of the first member and the second end of the second member are engaged with each other.

7. The connecting device according to claim **2**, wherein the bottom wall of the second end of the second member includes an inclined surface which faces the beam.

* * * * *